


# The politics of climate finance: Consensus and partisanship in designing green state investment banks in the United Kingdom and Australia

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Geddes, Anna; Schmid, Nicolas; [Schmidt, Tobias](#) ; Steffen, Bjarne

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## *Energy Politics Group*

# The politics of climate finance: Consensus and partisanship in designing green state investment banks in the United Kingdom and Australia

Anna Geddes, Nicolas Schmid, Tobias S. Schmidt and Bjarne Steffen<sup>1</sup>

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**Abstract:** The Paris Agreement will require national level mitigation action that takes advantage of economic and technological opportunities while redirecting finance towards low-carbon alternatives. However, climate change has been politicized in many countries, potentially blocking the introduction of climate policies and broader green industrial policies. Publicly funded green investment banks (GIBs) are one policy instrument that mobilizes private finance into national opportunities. However very little is known about the political decisions behind the establishment and design of these banks. Taking an exploratory approach, we analyse the parliamentary discourse behind the establishment and design of the UK's Green Investment Bank and Australia's Clean Energy Finance Corporation. We find that the debate on GIB establishment focused on arguments related to high-level policy goals and the role of the state. The debate on GIB design focused on technology target sectors, tasks and tools to be implemented, and organizational aspects. We find a difference in political controversy levels with Australia's debates displaying distinct partisanship on all debate topics, whereas the UK's debates displayed clear consensus on the majority of debated topics. We also find that debate on higher-level establishment concepts, especially the role of the state, received more attention in Australia, whereas in the UK there was greater discussion of design concepts, namely organizational aspects. We derive propositions on the politics of GIBs beyond our two cases, and conclude with an agenda for future research.

**Keywords:** Climate finance, public policy, politics

The [Energy Politics Group \(EPG\)](#) within the [Department of Humanities, Social, and Political Sciences](#) of [ETH Zurich](#) investigates questions related to the governance of technological change in the energy sector.

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<sup>1</sup> ETH Zurich, Haldeneggsteig 4, 8092 Zurich, Switzerland. E-Mail: [anna.geddes@iisd.net](mailto:anna.geddes@iisd.net) or [nicolas.schmid@gess.ethz.ch](mailto:nicolas.schmid@gess.ethz.ch)

# 1 Introduction

On 12 December 2015 the Paris Agreement, a global treaty on climate action, was agreed to by the world's governments [1]. This agreement marks a shift away from the burden-sharing mindset of the Kyoto agreement to focus on nationally driven mitigation action, and therefore national level policy instruments, and on benefiting from seizing economic and technological opportunities [2]. Moreover, the UNFCCC process has acknowledged the critical role of finance in addressing climate change, with parties having committed to 'making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development' (Article 2.1c of the Paris Agreement) [1, 3].

The issue of climate change mitigation has been politicized in many countries, including the United States, Canada, Australia and the UK, and partisanship and ideological divides persist<sup>2</sup> [9, 11-20], which can obstruct the introduction of national climate and green industrial policies [21-23]. In the energy sector in particular, mitigation action is pertinent because a technological transition from high to low greenhouse gas emitting energy technologies is required in order to meet climate change goals [24, 25]. Substantial investment is required for this energy sector transition [26, 27] and, hence, it is also important that the finance sector is brought in line with Article 2.1c of the Paris Agreement [28-30]. Green state investment banks (GIBs) are a new policy instrument<sup>3</sup> that focuses on national economic and low-carbon energy technological opportunities, using public finance to mobilize the private finance needed for the energy transition.

GIBs have recently been established by several countries (e.g. UK, Australia) and are being considered by others<sup>4</sup> (e.g. US, France and Indonesia) to provide climate finance in order to help develop their low-carbon energy sector and green their economies [28, 33-36]. While there exists literature on the various ways to design and fund GIBs [37, 38], as well as on their roles in, and impacts on, the economy [28, 39-42], there is no empirical account on the political

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<sup>2</sup> This is in part due to efforts to downplay the importance of climate change by conservative actors [4-10].

<sup>3</sup> National level Green Investment Banks (GIBs) are considered new instruments for two reasons. Firstly, while national level low-carbon and climate funds have existed prior to 2012, GIBs are different because they offer a broader range of instruments and activities than funds. Secondly while general state investment banks or national development banks have also existed prior to 2012, any shift in mandate to allow investment in green projects has been incremental and not subject to explicit deliberation in parliaments. GIBs have a specific 'green' mandate and they differ from general public banks that also invest in high-carbon projects. Consequently, given their novelty and mission-driven nature, GIBs were subject to explicit deliberation about their establishment and design in national parliaments.

<sup>4</sup> In May 2019 US Senator Chris Murphy (D-CT) and several other Senators introduced the "Green Bank Act of 2019" to the US Senate, France's President Emmanuel Macron has recently called for a "Climate Bank" [31] and Indonesia is actively exploring the suitability of applying the green investment bank model to its economy [32].

decisions behind, and discourse around, the establishment and design of these banks.. Similarly, while there is literature on the politics of climate change mitigation on a national level [e.g. 9, 11, 12, 15, 43], and literature on the politics behind general development finance institutions (DFIs) [44-48] there is none that focuses on the newly established national GIBs. The literature on the politics of banking typically considers the (de-)regulation of private-sector activities in commercial and investment banking [49]. However, with GIBs our paper focuses on public policy tools in banking addressing climate-specific issues (which widely differ from the issues addressed by DFIs). Research on the politics behind GIBs is of value, given the importance of political agency in sustainability transitions [22, 50-52], and the central role of parliamentary coalitions in the policy design process [53-56].

We aim to address this research gap by asking the research question: *What core arguments and conflict patterns can be observed in the political discourse behind the (i) establishment and (ii) design of a GIB?*

Given the lack of existing literature on the topic, we address the research question with an exploratory and inductive approach, collecting the first empirical evidence on GIB politics. The goal is to develop propositions and lay out an agenda for future research. Methodologically, we use Discourse Network Analysis (DNA) to analyse the parliamentary debates of two countries that were among the first to have established GIBs worldwide: The UK and its Green Investment Bank (UKGIB), and Australia and its Clean Energy Finance Corporation (CEFC)<sup>5</sup>. First, we present the overall discourse networks for each country based on all the debated topics. These networks indicate differences in the political controversy level between the UK and Australian debates. Here, we define political controversy as differences in policy positions on GIBs among members of the parliament, and, on a more aggregated level, among political parties. Next we examine what is debated in the discourse on whether to establish a GIB and find that the debate focused on arguments related to high-level policy goals and the role of the state. Third, we examine what is debated during the discourse on the design of a GIB and find that debate focused on technology target sectors, tasks and tools to be implemented, and organizational aspects. In both the establishment and design debates we find political controversy along party lines in the Australian debates, whereas we see high levels of political consensus in the UK GIB debates. In our operationalization of political controversy, we draw on literatures of policy change [57-59] and policy design [54, 55, 60], which state that when introducing and debating new policy instruments, such as the GIBs, policymakers are guided by abstract policy goals and abstract means to reach these goals. These abstract goals and means

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<sup>5</sup> The CEFC was called a 'corporation' instead of a 'bank' because of strict regulations in Australia on what constitutes a 'bank': In Australia, the name bank is restricted to those institutions that perform activities similar to commercial banks.

shape policymakers' understanding of political problems and enable them to formulate more concrete policy design features, such as target sectors or organizational aspects. Hence, to understand the politics behind GIB establishment and design, it is necessary to analyze both high-level ideological and concrete design-related positions.

The remainder of the paper is structured as follows: Section 2 describes our case selection and background of GIBs and in section 3 we discuss the method and data. In section 4 we present and discuss our results, and in section 5 we conclude with four propositions and an agenda for future research.

## **2 Case selection and background**

### **2.1 Case Selection**

The OECD reports that 13 countries or sub-national governments have established GIBs<sup>6</sup> or GIB-like entities since 2015 [33, 36]. In order to observe the politics and political discourse behind the establishment of a GIB we chose two countries that – although not considered leaders in general climate policy – were the first countries to establish their GIB, at approximately the same time. The cases selected for final study were the UK and its UKGIB and Australia and its CEFC, both GIBs established in 2012. Appendix A presents further background regarding the selected GIBs. Given their early establishment, and relative success, these two banks serve as example for subsequent GIBs in other countries (Geddes et al. 2018). In this sense, UKGIB and CEFC represent extreme cases (timing, and impact) in the general universe of GIBs. According to Seawright and Gerring [61] extreme cases are particularly well suited for exploratory and inductive research into an understudied subject. In this sense, our cases may inform how the politics of GIBs play out in other countries that intend to establish GIBs.

From the group of existing GIBs we excluded GIBs that were not established (and debated) at the national level (thereby excluding sub-national level GIBs). We then excluded GIBs that operated simply as low-carbon or climate funds: GIBs are different because they offer a broader range of instruments and activities than funds. We also excluded developing and emerging economy GIBs (or non-OECD) for our case selection because non-OECD GIBs typically have a focus on development, and have to deal with other market and system failures (e.g. institutional issues – cf. the literature on DFIs), which makes a comparison more difficult. Finally as both Australia and the UK are liberal democracies, there is a transparent reporting of

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<sup>6</sup> The OECD defines a GIB or GIB-like entity as a “public, quasi-public or non-profit entity established specifically to facilitate private investment into domestic low-carbon, climate-resilient infrastructure” [36].

political processes behind GIB establishment, which allows for systematic analysis. A description of each country's parliament and political parties can be found in Appendix B.

## **2.2 Background & political history of the UKGIB**

The UK has a long history of dependency on fossil fuel generation, however it has made progress in terms of its low-carbon sector, having achieved a share of installed renewables of 8% in 2012 at the time of the GIB's establishment (Figure C1 in Appendix C) [62]. From 2006 the issue of climate change rapidly climbed the political agenda, underpinned by growing public concern over climate change [11, 12]. This saw the major political parties start to compete over who was the most environmentally progressive [11]. The Labour Government (Tony Blair 1997-2007, Gordon Brown 2007-2010) implemented a spate of climate change and energy policies from 2006 amid this consensus-building phase and the UK became the first country to legally commit to an ambitious emissions reduction target in 2008 [11, 12, 63]. After the 2010 election, the new Conservative-Liberal Democrat coalition Government (2010-2015), led by Prime Minister David Cameron, initially maintained this non-partisan momentum towards climate and energy policy making [11, 12].

The idea of a green bank was first raised by various advocacy groups, think-tanks and NGOs, including e3g, Climate Change Capital and the Friends of the Earth, wherein a grassroots campaign was run until the Liberal-Democrats proposed a UK Infrastructure bank in 2009 [34, 64]. Soon after all three main parties had included plans to establish a GIB in their party manifestoes, reflecting the competitive 'one-upmanship' between parties around climate change policy [11]. The UKGIB's establishment debate occurred towards the end of this politically non-partisan phase, and soon after the 2008 financial crisis, amid strong calls to stimulate, diversify and 'green' economic growth. The Enterprise and Regulatory Reform Bill 2012, containing legislation pertaining to the UKGIB's establishment and mandate, was introduced by the Conservative-Liberal Democrat coalition to the House of Commons on 23 May 2012, passed to the House of Lords on 18 October 2012 and eventually received Royal Assent on 25 April 2013 [65, 66].

The UKGIB operated in a market-based finance system featuring a banking sector that was struggling to provide finance to low-carbon projects after the global financial crisis of 2008 [28]. For a more detailed description of the UKGIB's role and operation and the UK's policy context see the table in Appendix A and section 2.3 of Geddes, Schmidt and Steffen [28].

### **2.3 Background & political history of the CEFC**

The fossil fuel sector has historically dominated Australia's economy, both export-wise and via domestic generation and consumption [67]. Its energy mix reflects an incumbent fossil fuel industry heavily dependent on coal and, more recently, natural gas with a share of installed renewables of 6% in 2012 at the time of the CEFC's establishment (Figure C1, Appendix C) [68]. There have been a range of impediments to the financing and deployment of low carbon projects, many related to "entrenched political and economic interests of the fossil fuel industry" [7, 15] and on-going policy uncertainty [15, 28, 69-73]. In contrast to the UK, both climate change and associated energy policy have been heavily politicized in Australia [7, 43, 74, 75]. The electricity sector has faced increasing levels of political conflict and policy uncertainty since the 1980s when climate change first arrived on the political agenda [75]. This has also been complicated by the ever-changing positions on climate change and energy policy of the two major political parties, Labor and Liberals, as they undergo internal conflict and division [15, 75, 76]. Cheung and Davies [15] found that "energy policy is primarily a political and ideological issue rather than one driven by underlying economic conditions" [15, p96].

Prime Minister Julia Gillard's minority Labor Government (2010-2013), supported by Green and Independent MPs who held the balance of power in both houses, announced the CEFC in July 2011 as part of its Clean Energy Future Package [43, 69, 77]. But it was the Green party that originally pushed for the establishment of the CEFC and made other climate policies, such as carbon pricing, conditional in return for their on-going support for the minority government [43, 74]. The opposition leader at the time, Tony Abbott (Liberal party), maintained an unrelenting attack on the Government throughout its term, focusing in particular on denouncing its climate change policies and declaring the carbon price to be "a great big tax on everything" [74]. It was against this political backdrop that the Clean Energy Finance Corporation Bill 2012 was introduced to the House of Representatives on 23 May 2012, then the Senate on 18 June 2012 before eventually passing both houses as of 25<sup>th</sup> June 2012 [78].

The CEFC operates in a market-based finance system that features a highly concentrated banking sector dominated by 4 commercial banks that, historically, have been unwilling to provide finance to low-carbon projects [28]. For a more detailed description of the CEFC's role and operation and Australia's policy context see the table in Appendix A and section 2.2 of Geddes, Schmidt and Steffen [28].

## 3 Data and Method

### 3.1 Data

We collected primary data in the form of parliamentary debate documents from each country's official online Hansard<sup>7</sup> archive [79, 81]. For each country we performed a word search in both chambers of parliament for documents containing the exact phrase "green investment bank" for the UK and "clean energy finance corporation" for Australia, filtering until 11<sup>th</sup> October 2018. This returned 1255 UK documents and 820 Australian documents. We then identified the key bill that was debated in each parliament in order to establish a GIB and identified the date at which each bill was passed into law. In the UK this was the "Enterprise and Regulatory Reform Bill 2012", which passed through both houses as of 17 October 2012. In Australia this was the "Clean Energy Finance Corporation Bill 2012", which passed both houses as of 25<sup>th</sup> June 2012. We then removed debates that occurred after these dates in each country, removed any duplicate debate documents and any documents that did not contain public debate (daily programs, notice papers, orders of business, journals and procedures etc.). We were left with 308 debate documents in total (189 UK, 119 Australia).

### 3.2 Method

Our overall analytical approach is based on Discourse Network Analysis (DNA), an established mixed-methods technique combining qualitative content analysis and quantitative social network analysis [82, 83]. The method is well suited to answer our research questions: DNA enables us to inductively assess actor positions in political debates based on text analysis. Building on this qualitative content analysis, the method allows us to aggregate the collected data into actor networks, and hence to systematically identify patterns of controversy and partisanship (as done for example in Schmid, Sewerin and Schmidt [22] and Rinscheid [84]). By combining qualitative coding with systematic quantitative aggregation visualized in networks and descriptive statistics, the method outperforms purely qualitative discourse analysis approaches.

We proceeded in four steps. First the transcriptions of the parliamentary debates were uploaded into the Discourse Network Analyzer software to allow analysis of the qualitative content [82, 83]. Second, the data was coded within the DNA software. A codebook was built using a bottom-up iterative process where conceptual groups were categorized and then abstracted into meta-categories to answer the research questions. The codebook can be found in Appendix D

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<sup>7</sup> A Hansard is a transcribed report of what is said in Parliament and includes decisions taken and how Members vote during a parliamentary sitting [79, 80].



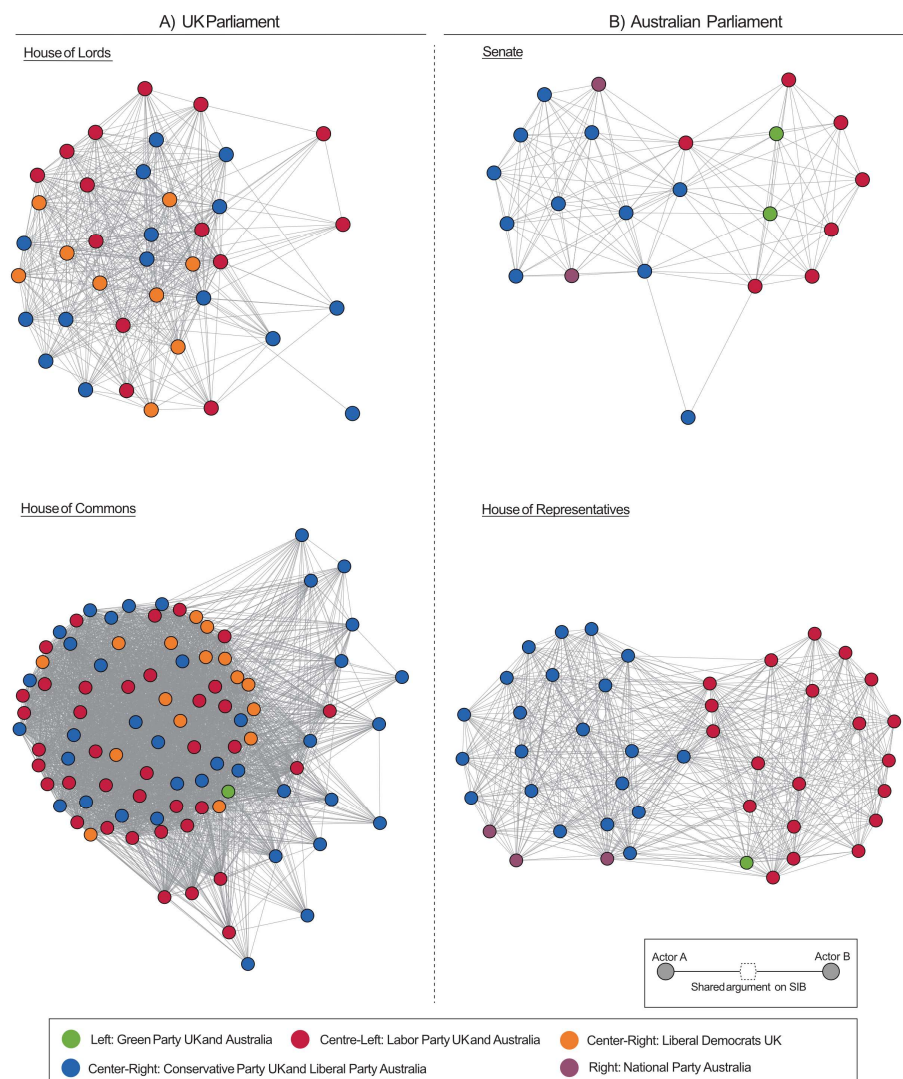
and contains 46 categories that were aggregated into five meta-categories. From the 308 documents, we coded 2811 statements (arguments) by 197 Members of Parliament (a list of MPs can be found in Appendix E). Three researchers were involved in the coding process, with two researchers coding material and a third acting as a control check on the original coders, in order to improve reliability of the coding [85].

Third, to explore the politics behind the establishment of GIBs, we analyzed the coded parliamentary debates using Discourse Network Analysis (Leifeld 2013, 2016). With this method, we were able to distil political networks from the parliamentary debates. By coding text data, we linked actors, i.e. individual MPs, to concepts, i.e. arguments for or against GIB establishment and design (see Appendix F for an overview of the model). Based on this coding, we can project one-node networks of MPs. In such networks, we can visualize clusters of MPs that share a common set of arguments related to GIBs. Hence, on an abstract level the method allowed us to explore differences in partisanship in our two cases. Fourth, we zoomed into different topics debated about GIB establishment and design. To do so, we plotted the relative frequency of both negative and positive argument categories across the two cases, and differentiated by political party. These descriptive statistics allow us to give exploratory insights into the saliency and partisanship around various argument categories related to the establishment and design of GIBs.

## **4 Results**

The results and discussion are structured as follows: In Section 4.1 we present the general overview of the discourse in each country, investigating the discourse networks and the distribution of the overall categories debated in each country. In Section 4.2 we then investigate the categories debated during the discourse on whether a GIB should be established, namely high level policy goals and role of the state. Finally in Section 4.3 we examine the categories debated during the discourse on a GIB's design, namely a GIB's target sectors, tasks and tools and organisational aspects.

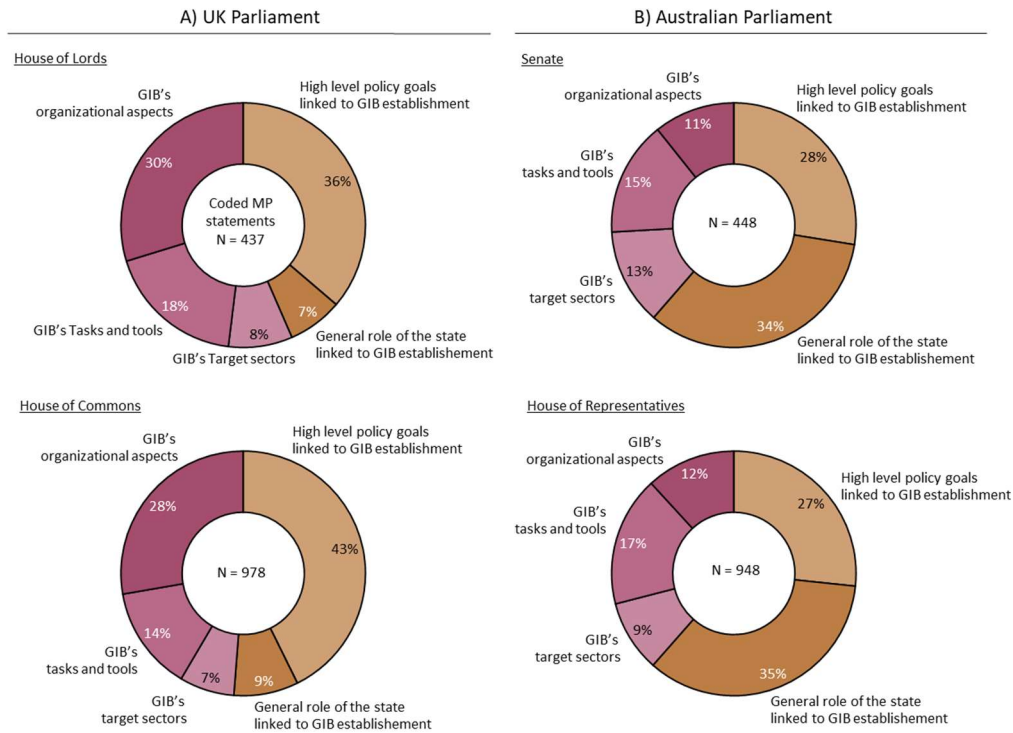
## 4.1 General characterization of the discourse



**Figure 1: Discourse networks during parliamentary debates in the UK and Australian parliaments regarding the establishment and design of a green investment bank (GIB). In the one-node support affiliation networks, nodes are members of parliament (MPs) that coalesce around arguments on GIBs. Two actors (MPs) are linked if they share an argument about GIBs (see legend). Networks are based on all arguments on GIBs (for the codebook see Appendix D). Colors indicate MPs' individual party affiliation (see legend). Refer to Appendix E for the list of MPs. Networks are based on 2811 coded statements from 308 parliamentary debate documents (from all four chambers) on the establishment and design of GIBs, from 2010 to 2013. The graph layout is based on stress minimization.**

Firstly we present a general overview of the discourse around establishing and designing a GIB in each country. Figure 1 shows the discourse networks observed during all GIB related parliamentary debates in the UK and Australian parliaments. The key observation here is that while the UK parliament consists of one large network cluster with few outliers, the Australian parliament is composed of two clearly separate clusters. In other words, our results reveal broad consensus between MPs of all party-colors in the UK parliamentary discourse whereas we see

strong polarisation between left-wing and right-wing parties in the Australian parliamentary discourse. We see similar clustering in both legislative chambers for each country. In order to better understand the (non-)partisanship patterns seen in Figure 1, below we examine the types of arguments voiced in the debates, delineating by political party, before zooming into the details behind individual argument categories.



**Figure 2: Overall distribution of debated topics in both legislative chambers in Australia and the UK. N represents the number of arguments made per chamber. Role of the state and high level policy goals are categories debating the higher level question as to whether a GIB should be established. GIB's organisational aspects, tasks and tools and target sectors are categories concerned with debate around a GIB's design.**

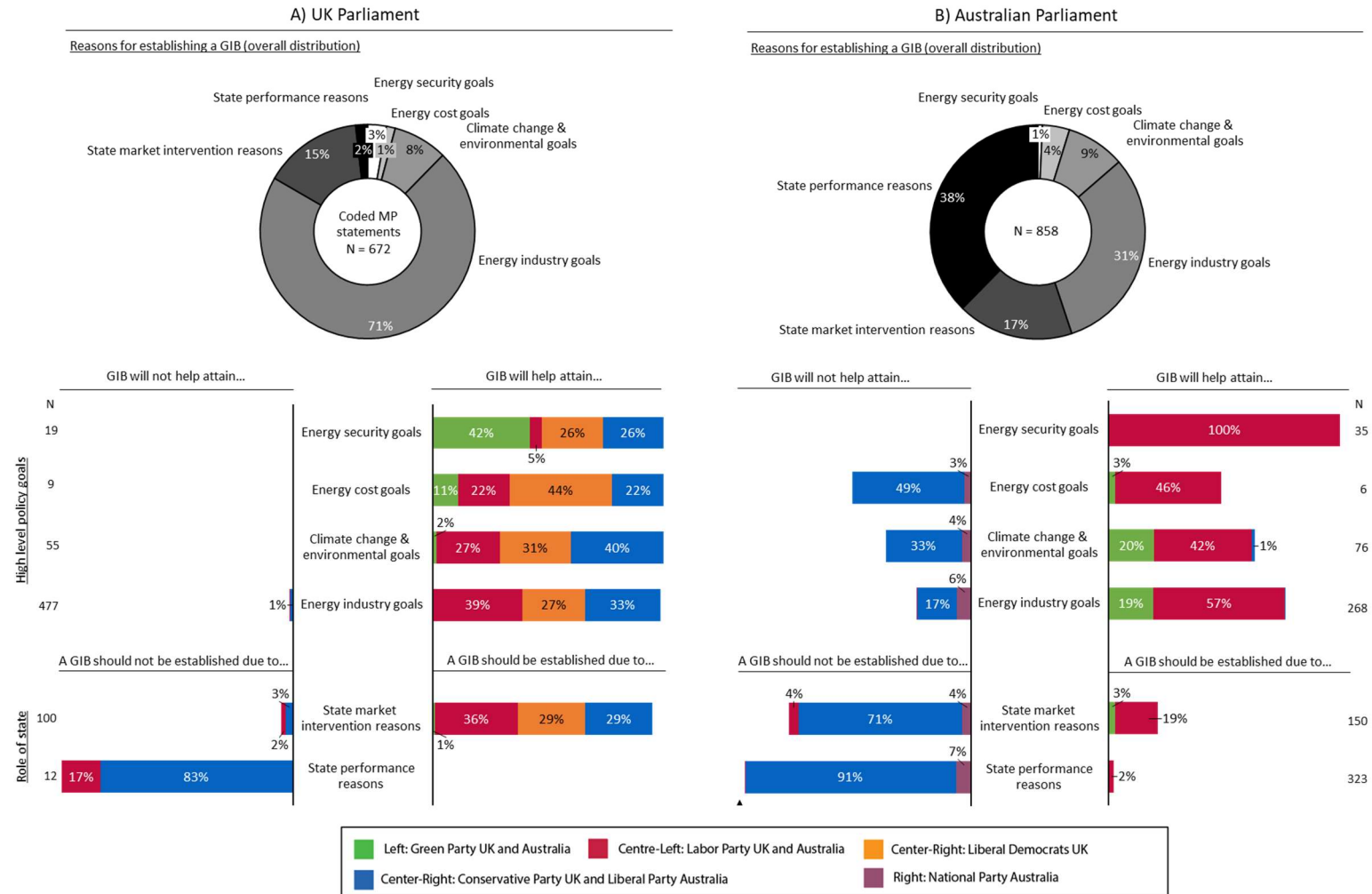
Next we zoom into the different categories debated in each country's parliament. When debating whether the country should or should not establish a GIB, MPs' arguments fell into two broad categories: Whether establishing a GIB will help to attain high-level policy goals and reasons relating to the role of the state. When debating how the GIB should be designed, arguments fell into three broad categories: what target sectors a GIB should support, the tasks and tools available to it, and any organizational aspects.

Figure 2 shows the overall distribution of debated statements by category, separated into each country's two legislative chambers. There are two important findings. First, categories that are concerned with the a GIB's design (GIB's target sectors, tasks and tools and organizational aspects) received more attention in the UK than in Australia, where debate on categories concerned with whether to establish a GIB (high level policy goals and the role of the state)

were of greater focus. Second, there is little difference in the distribution of debate topics between the two houses in the UK and likewise for the two houses in Australia.

Because for each country the network clustering is similar in both houses (Figure 1), and the overall distribution of categories discussed do not significantly differ between houses (Figure 2), in the following analyses, we aggregate the data in both houses for each country. Given the large proportion of arguments on the role of the state and high level policy goals linked to establishing a GIB in both countries, we next take a more detailed look at this category.

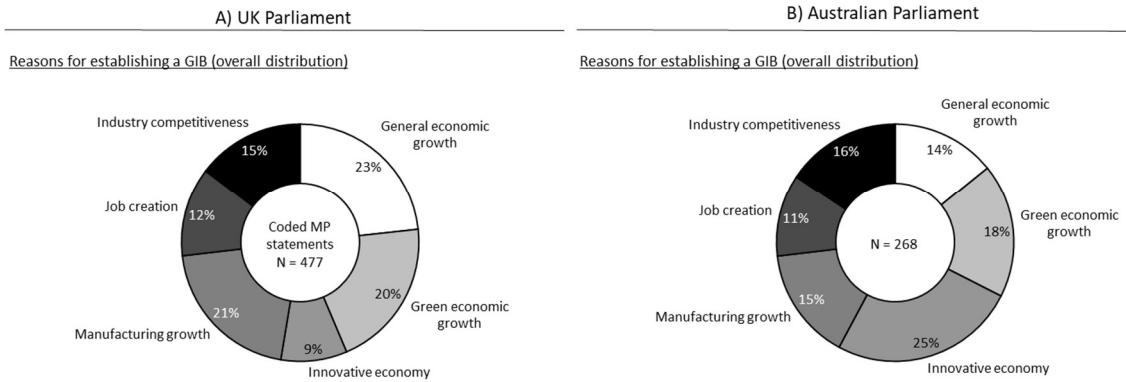
## 4.2 Discourse on whether to establish a GIB



**Figure 3: Reasons for establishing a GIB: Attaining high level policy goals and the role of the state.** The doughnut charts show the overall distribution of disaggregated argument categories. Here N represents the total number of arguments made regarding the high level policy goals and the role of the state. The bar charts show the distribution of arguments either in support of establishing a GIB (right side for each country) or in opposition to it (left side for each country). Here N represents the total number of arguments made for each argument category. The breakdown of each argument category by an MP's political party affiliation can also be seen by colour and per cent.

When debating whether to establish a GIB, MPs' arguments fell into two broad categories: Attaining high-level policy goals and reasons relating to the role of the state. In Figure 3 we disaggregate these argument categories and the following four main observations can be made. Firstly, there is a difference in the emphasis of the high level debates for each country (doughnut charts). The UK debates centred on whether establishing a GIB would help meet energy industry goals (to be discussed in detail next) whereas in Australia the debate focused on role of the state type arguments, in particular state performance. Quotes from the debates illustrating these establishment arguments can be found in Table 1. One Australian MP opposed to establishing the CEFC argued, "We have seen first hand the problems created when a government backs a so-called winner...the monumental collapse of the Queensland government's ZeroGen project, costing taxpayers well over \$100 million of losses" (Russell Matheson, Liberals, 3.05.2012) (see also quote ID 14, Table 1). Secondly, and somewhat surprisingly, in both countries there were very few arguments around whether establishing a GIB would help meet energy cost goals, despite energy poverty being considered a very important issue in the UK (quote ID 1, Table 1) [86-88] and Australia paying some of the highest retail energy prices in the world (quote ID 9 and 10, Table 1) [89]. Thirdly it is also interesting that there wasn't more debate in either country regarding whether a GIB would help or hinder the attainment of climate change and environmental goals, given that this could be considered one of the main motivations for establishing such a bank (quote ID 2, 11 and 12, Table 1).

Finally our analysis in the bar charts of Figure 3 also allows us to gain new insights on the partisanship of the debated topics: the UK shows clear consensus for most of the argument categories whereas the Australian data indicates strong partisanship, with debate occurring along clear party lines: we see support for the CEFC's establishment coming almost exclusively from the left leaning parties and opposition arguments predominantly from the right leaning parties. It is interesting that centre-right and right parties in the UK showed almost no opposition to the bank for reasons regarding the role of the state regardless of the fact that the centre-right Conservative party has historically been against 'unwarranted' government intervention in markets, being more supportive of liberalized market ideology [11, 12].



**Figure 4: Reasons for establishing a GIB: Disaggregation of energy industry goals. The doughnut charts show the overall distribution of the disaggregated argument categories. Here N represents the total number of arguments made regarding the energy industry goals category.**

In Figure 4 we zoom into the energy industry goals category for each country because this category featured a large number of statements and included a wide variety of sub-arguments. In the charts we observe a somewhat similar distribution of debated topics for each country. However the UK was more focused on whether a GIB’s establishment would help support manufacturing growth and general and green economic growth (quote ID 3, 4, Table 1), whereas in Australia the debates focused more on whether a GIB will help foster an innovative economy. A UK MP argued that “A GIB will support the growth, industrial transformation and greening of the UK economy” (Vince Cable, Liberal Democrats, 14.10.2010) and an Australian MP asserted that “[...] the CEFC [will] generate innovation and get behind the research, development and exploitation that have so often been missing in creating a more diverse economy than we have at this point.” (Mike Kelly, ALP, 14.09.2011).

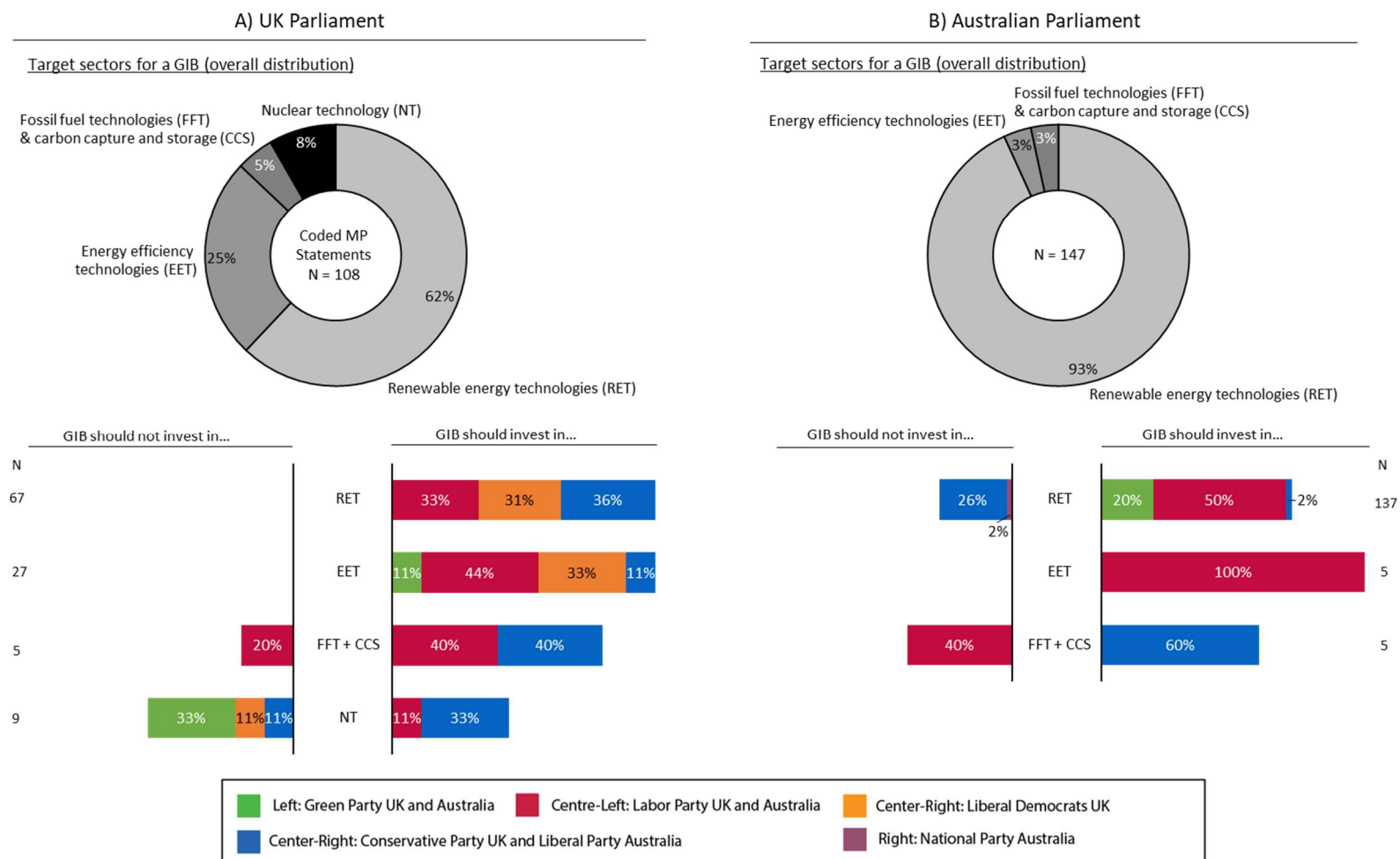
Exemplary quotes		
United Kingdom	<p align="center"><b>High-level policy goals</b></p> <p><b>Energy cost goals:</b> "...the green investment bank, is a way of moving that [energy efficiency] agenda forward at last. It is good for improving fuel poverty..." (Robin Teverson, LD, 02.06.2010) [ID 1]</p> <p><b>Climate change &amp; environmental goals:</b> "The green investment bank will work towards a double bottom line of achieving a significant green impact and making financial returns." (Stephen Williams, CON, 13.09.2011) [ID 2]</p> <p><b>General economic growth:</b> We see this [UKGIB] as a fundamental building block for bringing new investment into an area which is a massive driver for economic growth and recovery in this country." (Charley Hendry, Con, 10.02.2011) [ID 3]</p> <p><b>Green economic growth:</b> "Now is the time for a strong move to correct the great market failures associated with the environment and climate change. With green taxes and other measures, including the green investment bank, we can simultaneously raise revenue, help markets work better and foster a new and cleaner source of growth. This is surely what our American friends would call a no-brainer." (Nicholas Stern, Lab, 26.07.2010) [ID 4]</p> <p><b>Industry competitiveness:</b> "As with many other important industrial transformations, the Government's role in the green investment bank's infancy is key. By setting up the bank, which is the first of its kind in the world, we can provide capital and funding to nurture these nascent markets and secure a global competitive advantage for the UK." (Vince Cable, LD, 14.05.2012) [ID 5]</p> <p align="center"><b>Role of the state</b></p> <p><b>State-market intervention reasons:</b> "The challenge is all the greater, given the novelty of these markets and the long-term nature of returns on green infrastructure investment, which may deter private sector investors. There is a market failure here that the green investment bank will address." (Vince Cable, LD, 11.06.2012) [ID 6]</p> <p><b>State-market intervention reasons:</b> "... the challenge that we face in diversifying our economy is one that neither the private sector nor the Government can face alone. Rather, this must happen through the public and private sectors working together. That is why the role of the new green investment bank in driving future growth and employment in environmentally sustainable industries, with a £2 billion investment, is so crucial." (William Bain, Lab, 25.03.2010) [ID 7]</p>	
	Australia	<p align="center"><b>High-level policy goals</b></p> <p><b>Energy security goals:</b> "It [the CEFC] will help us to provide the energy security, prosperity and rewarding jobs that our children have the right to expect." (Mike Kelly, ALP, 29.05.2012) [ID 8]</p> <p><b>Energy cost goals:</b> "The simple fact of the matter is unless we put in place mechanisms like this [CEFC], which enable us to commercialise large-scale renewable, alternative and clean energy technologies, we will be paying more for electricity." (Stephen Jones, ALP, 30.05.2012) [ID 9]</p> <p><b>Energy cost goals:</b> "Is the fund [CEFC] charged with investing in the lowest cost technologies to produce the cheapest emission reductions? No. It is basically there to fund technologies that are uneconomic, unproven and too speculative for the private sector to finance." (Concetta Fierravanti-Wells, LIB, 25.06.2012) [ID 10]</p> <p><b>Climate change &amp; environmental goals:</b> "It gives me great joy that today we take these first crucial steps toward mitigating runaway climate change. I am most excited about the \$10 billion renewable energy funding package [for the CEFC]." (Larissa Waters, GRN, 31.10.2011) [ID 11]</p> <p><b>Climate change &amp; environmental goals:</b> "But there is not any suggestion or any real contention from the government that this [the CEFC] will produce an environmental benefit. So, at the end of the day, we are going to be expending \$10 billion of hard-earned production and taxpayers' money in a quest for clean energy that is really not going to produce any environmental benefit at the end of all of that." (Alex Hawke, LIB, 30.05.2012) [ID 12]</p> <p><b>Job creation:</b> "The establishment of the Clean Energy Finance Corporation will act to overcome market failures by providing financing for Australian based renewable energy technologies, low-emissions technologies and energy efficiency projects. This is nation building, this means jobs for Australians." (Mark Dreyfus, ALP, 30.05.2012) [ID 13]</p> <p align="center"><b>Role of the state</b></p> <p><b>State-market intervention reasons:</b> "What is it with Labor governments and the need to have the federal government, or any government, get its grubby little paws involved in private enterprise, picking winners and deciding where to invest money?" (Sue Boyce, LIB, 25.06.2012) [ID 14]</p>

**Table 1: Exemplary quotes on high-level policy goals and role of the state for GIB establishment. Identity of MP and date of parliamentary debate in brackets, ID in square brackets for reference in main text.**

The focus in both countries on energy industry goals shows that economic opportunity arguments were central to discussions in both countries. Importantly, many of the energy industry goals that were debated, such as the green economic growth and innovative economy arguments, are beyond the traditional industry policy arguments indicating that 'green' industrial policy [90] was considered relevant within these countries' political debates.

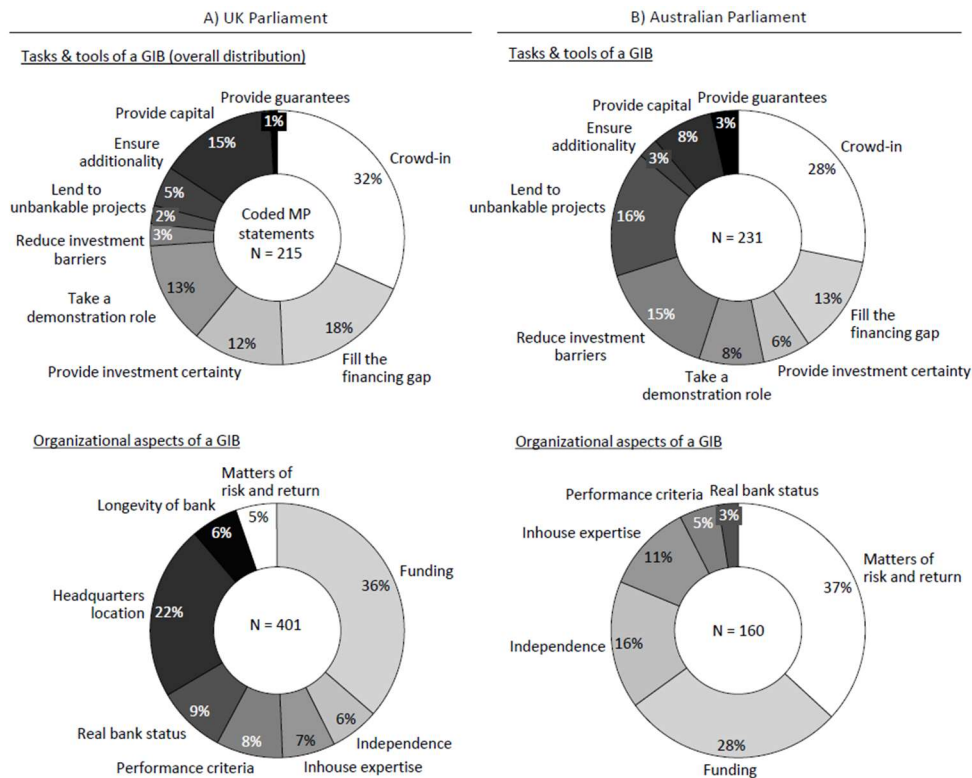


### 4.3 Discourse on the design of a GIB



**Figure 5: Design of a GIB: Target sectors.** The doughnut charts show the overall distribution of disaggregated argument categories. Here N represents the total number of arguments made regarding the target sectors that a GIB should or shouldn't invest in. The bar charts show the distribution of arguments either in support of investing in a certain target sector (right side for each country) or in opposition to it (left side for each country). Here N represents the total number of arguments made for each argument category. The breakdown of each argument category by an MP's political party affiliation can also be seen by colour and per cent.

MPs also debated various design features in relation to a GIB. In Figure 5 we take a more detailed look at the debate regarding what a GIB should or shouldn't invest in, in terms of target technologies and sectors. Quotes illustrating the debate on target sectors can be found in Table 2 (ID 15, 16 and 25). Both countries' debates mostly focused on renewable energy technologies (RETs) (Table 2, quote ID 15). Energy efficiency technologies (EET) were discussed much less in both countries, which may reflect a general lack of knowledge of the sector and its financing, which is considered complex [91]. There was also very little debate around support for ("clean") fossil fuel technologies and carbon capture and storage (FFT & CCS) in either country despite a large coal generation sector in Australia (Table 2, quote ID 25) and coal generation and carbon intensive industries (e.g. steel, cement etc.) in the UK [92, 93]. Nuclear is banned in Australia and was not discussed at all and its debate in the UK may have been minimal because support for nuclear energy was conditional on EU state aid approval (approval that was not given) (Table 2, quote ID 16) [94, 95]. Again for the most debated topics we can see generally more consensus in the UK debates whereas we see partisanship along party lines in the Australian debates. There was some opposition by UK MPs to certain arguments, namely FFT & CCS and nuclear, but this opposition was minimal and not partisan.



**Figure 6: Design of a GIB: Tasks and tools, and organizational aspects.** The donut charts show the overall distribution of disaggregated argument categories debated around the tasks & tools (top charts) and organizational aspects (bottom charts) of a GIB. Here N represents the total number of arguments made regarding the tasks and tools of a GIB (top charts) and the organizational aspects (bottom charts).

In addition to a GIB’s target sectors, MPs also debated two other design features, namely the tasks and tools to be fulfilled and implemented by a GIB, and organizational aspects. Figure 6<sup>8</sup> presents more detail on the debate around these features and illustrative quotes can be found in Table 2 (ID 17-24, 26-28). As seen in the upper charts, arguments that the GIB should attract private investment as co-investors and thereby “crowd-in” private finance to the low-carbon sector dominated both countries’ discussion about the tasks and tools of a GIB, with one UK MP asserting that “the GIB is about crowding in private sector investment into a viable green economy”(Gregory Barker, Conservatives, 11.11.2010) (see also quote ID 17, Table 2). This was closely followed by arguments in both countries that it should ‘fill the finance gap’ faced by low-carbon projects (quote ID 18, Table 2). Debate in the UK was then more concerned with ensuring the GIB provided investment certainty (quote ID 19, Table 2), played a demonstration role (quote ID 20, Table 2) and that it should provide capital (market rate debt and equity finance), whereas Australia was more focused on concerns about a GIB’s role in reducing investment barriers (quote ID 26, Table 2) and lending to un-bankable projects. As an Australian MP argued, “In our view, the remit of the CEFC should be to look for genuine, commercially acceptable projects. It should not be markets that are unproven or too speculative or too risky for any investor to touch with a 40-foot barge pole.” (Sue Boyce, Liberals, 25.06.2012)

Exemplary quotes	
	<b>Target sectors</b>
	<p><b>RET:</b> “The highlands of Scotland could contribute to the Green investment bank’s potential and also benefit greatly from it. I am thinking particularly of areas such as the Kishorn site in my constituency, which is on the brink of being brought back into being and at the cutting edge of offshore technology. I am also thinking about the tidal stream campaign at Kyleshera, which has attracted a great deal of attention and has great potential.” (Charles Kennedy, Liberal Democrats, 10.05.2012) [ID 15]</p> <p><b>NT:</b> “I should declare an interest in that I have a nuclear power station in my constituency. I would quite like another one, and I think that part of that supply chain could be considered by the green investment bank.” (Iain Wright, Labour, 17.10.2012) [ID 16]</p>
	<b>Tasks and tools</b>
<b>United Kingdom</b>	<p><b>Crowd-in:</b> “The bank must be ambitious and it must lever in substantial amounts of private capital.” (Vince Cable, Liberal Democrats, 14.10.2010) [ID 17]</p> <p><b>Fill the financing gap:</b> “It [UKGIB] will be an institution that complements our existing green policies and addresses the areas of under-investment that persist in spite of the other measures I have mentioned.” (Stephen Williams, Conservatives, 13.09.2011) [ID 18]</p> <p><b>Provide investment certainty:</b> “The green investment bank has been mentioned many times. That is vital for funding, particularly development funding, in the industry and for giving certainty to the industry about the ability to develop and finance that funding.” (Brandon Lewis, Conservatives, 05.03.2012) [ID 19]</p> <p><b>Take a demonstration role:</b> “Going back to the core of what the bank is set up to do, it is to demonstrate the ability to make both a positive return and a green impact.” (Jonathan Marland, Conservatives, 03.12.2012) [ID 20]</p> <p><b>Lend to unbankable projects:</b> “Does my hon. Friend agree that the green investment bank must not be a bank of last resort that simply takes the projects that no one else is prepared to take, but must drive investment forward, taking the private sector with it, particularly in areas such as offshore wind...?” (Ann McKechin, Labour, 11.06.2012) [ID 21]</p>
	<b>Organizational aspects</b>
	<p><b>Funding:</b> “I must emphasise the vital importance of the GIB having powers to borrow, so that it can reach its full potential and provide certainty to investors. It must have that power so that it is not just a Government-run fund.”</p>

<sup>8</sup> Much of the debate on tasks and tools and organizational aspects was too nuanced and complex to display the consensus and partisanship in the figure. Therefore we have not included a graphical representation of partisanship for this part of the debate.

	<p><i>The £3 billion of start-up funding should unlock £15 billion-worth of private sector investment...</i>" (Peter Aldous, Conservatives, 28.06.2012) [ID 22]</p> <p><b>Real bank status:</b> <i>"The green investment bank will be critical to the transition that we need, but it absolutely has to be a real bank, not just a fund in the Treasury with "bank" attached to it. It has to be a genuine bank that can lend money, raise money, raise bonds and so forth."</i> (Caroline Lucas, Greens, 11.11.2010) [ID 23]</p> <p><b>Longevity of bank:</b> <i>"It is important that they support it, because the concept of the green investment bank is that it should be an enduring institution that lasts through successive Parliaments."</i> (Vince Cable, Liberal Democrats, 24.05.2011) [ID 24]</p>
	<p style="text-align: center;"><b>Target sector</b></p> <p><b>FFT &amp; CCS:</b> <i>"Treasury modelling of the Clean Energy Future package acknowledges that carbon capture and storage will make an important contribution to meeting Australia's emissions reduction target. Its exclusion from the Clean Energy Finance Corporation is clearly inconsistent with this finding. Carbon capture and storage should have the same access to a competitive process for this funding as the suite of other low-emission and renewable technologies."</i> (Ian Macdonald, Conservatives, 07.11.2011) [ID 25]</p>
	<p style="text-align: center;"><b>Tasks and tools</b></p>
<b>Australia</b>	<p><b>Reduce investment barriers:</b> <i>"The Clean Energy Finance Corporation will facilitate increased flows of finance into the clean energy sector to support this transformation, removing barriers that would otherwise prevent the financing of projects."</i> (Gregory Combet, Labour, 23.05.2012) [ID 26]</p> <p><b>Provide capital:</b> <i>"The [CEFC] will drive innovation through commercial investments in clean energy through loans, loan guarantees and equity investments from the private sector."</i> (Mark Bishop, Labour, 01.11.2011) [ID 27]</p>
	<p style="text-align: center;"><b>Organizational aspects</b></p> <p><b>Matters of risk and return:</b> <i>"Having a public policy purpose, the corporation [CEFC] has different financial risk, return requirements, and values any positive externalities from investments. For a given financial return, the corporation may take on higher risk and, for a given level of risk, due to positive externalities, may accept a lower financial return."</i> (Gregory Combet, Labour, 23.05.2012) [ID 28]</p>

**Table 2: Exemplary quotes on target sector, tasks and tools, and organizational aspects of GIB design. Identity of MP and date of parliamentary debate in brackets, ID in square brackets for reference in main text.**

As seen in the lower charts of Figure 6, discussions around funding received much attention in both countries. The bulk of the debate in the UK focused on when the GIB would have access to capital markets with MPs arguing that "The green investment bank will be critical to the transition that we need, but it absolutely has to be a real bank, not just a fund in the Treasury with "bank" attached to it. It has to be a genuine bank that can lend money, raise money, raise bonds and so forth." (Carline Lucas, Green, 11.11.2010) (see also quote ID 22, Table 2). In comparison, funding arguments in Australia were mostly about how the CEFC would be accounted for in the government budget (whether it's entire foundation funding should be accounted for or just it's predicted 7% loss). Matters of risk and return, i.e., that the CEFC should take more or less risk than that proposed, should perform risk reallocation, should take higher risks because it's supporting more innovative technology, accept more or less of a return etc., were also greatly debated in Australia (quote ID 28, Table 2). The location of the headquarters of the UKGIB was important to the UK. Although not shown in Figure 6, once more we saw greater consensus in the UK and partisanship in Australia around these design issues.

## 5 Discussion and Conclusions

This is the first work to investigate the political discourse behind a GIB. Such banks are gaining popularity as a policy instrument for national level climate and green industrial policy [31]. Given their potential versatility, effectiveness and wide reach [28, 40], more governments are beginning to debate their establishment and deliberate over decisions concerning their design and operation [31]. Our findings are particularly relevant given that political debate to establish a national GIB is about to commence in the United States where climate policy is highly controversial and partisan [8, 9].

Analysing the political discourse on these GIBs has shed light on the politics behind their establishment and design. We find that the debate on GIB establishment focused on arguments related to high-level policy goals and the role of the state. The debate on GIB design focused on technology target sectors, tasks and tools to be implemented, and organizational aspects. Our results produce observations that allow us to develop (four) propositions for further investigation.

Firstly, we find a difference in political controversy level with Australia's debates displaying distinct partisanship on all debate topics, whereas the UK's debates displayed clear consensus on the majority of debated topics. When the establishment of a GIB was being debated, Australian politics was considerably more partisan around climate change than that in the UK [11, 12, 74, 75]. This leads us to our first proposition:

1. *The political debate behind establishing and designing a national GIB reflects a country's existing political controversy level regarding climate change. Hence, GIBs face similar political controversy as that faced by other climate change mitigation policies.*

This proposition deserves further investigation because if it holds, then either a political consensus or a government majority may be needed to pass through legislation to establish such a GIB. In other words, the opportunity-oriented character of GIBs does not seem to help mitigate climate policy controversy.

Secondly, we find that debate on higher-level establishment concepts, especially the role of the state, received more attention in Australia, whereas in the UK there was greater discussion of design concepts, namely organizational aspects. This leads us to our second proposition:

2. *A country's existing political controversy level regarding climate change influences the focus of political debate on establishing and designing a GIB. Political conflict and partisanship focuses debate on higher-level establishment type arguments whereas consensus focuses it on more detailed design features.*

Perhaps the existing political conflict towards climate change in Australia meant MPs were more inclined to debate whether a GIB should be established at all and why it should or should not be established. In the UK however, the existing political consensus potentially meant MPs were more inclined to debate GIB design details, such as bank headquarters location. UK MPs were already in agreement that a GIB should be established and that it would create co-benefits by helping to meet the high level policy goals of energy industry, cost, security and climate change and environmental goals. Investigating this proposition, whether and how political controversy may shape the focus of this discourse, is of interest because it has implications for legislators and policy design. For example, if the establishment of a GIB is introduced during times of political consensus, debate may be more centred on the detailed qualities of a GIB's design, and hence there is an opportunity for legislators to have greater influence over these aspects. On a theoretical level, these propositions are relevant for policy design and policy change literatures [54-57]. Our findings suggest that controversy and partisanship on higher-level policy goals may influence lower-level policy design features, which stresses the need to better understand the role of partisanship in design processes [60].

Thirdly, our findings suggest that for mitigation action on a national level there are different political issues than those seen at the international level: instead of the fair burden-sharing controversy there has been a shift to seizing economic and technological opportunities [2]. Our findings confirm the shift to this opportunity-oriented perspective, with a large proportion of arguments on GIBs emphasizing the opportunity, and not the cost, of this climate change mitigation instrument. This leads us to our third proposition:

3. *The more policymakers focus on industrial opportunities of GIB activity, the more political consensus (also across the political spectrum), and the more ambitious subsequent GIB design.*

Nevertheless, this policy was not immune to controversy. Even opportunities for certain industries within a country can be seen as disadvantages for other incumbent industries, which was the case in Australia but not in the UK [96]. Hence introducing policies to help maximize (green) industrial developmental opportunities and attain industrial goals, for example via the establishment of a GIB, can also face political conflict. We also see that where there is partisanship around climate change, parties that have traditionally played down anthropogenic climate change or denied its existence, i.e. the more conservative or centre-right parties [4, 7-10], are at the same time often against state intervention in (financial) markets. This presents a problem for policy instruments such as GIBs that address climate change while simultaneously aiming to “create and shape” markets to foster national low-carbon economies [40].

Finally we saw surprisingly little debate on certain topics that relate to establishing and designing GIBs that have been highlighted in previous literature [28, 40]. First, the low number of arguments on whether a GIB would help or hinder the attainment of climate change and environmental goals (cf. Fig. 3) is similar to findings in Schmidt, Schmid and Sewerin [53] where the authors found only minimal discussion of environmental goals compared to industry policy goals in German parliamentary debate on policy supporting renewable energy. Second, other than a GIB's demonstration role, few of the roles of green state investment banks identified in other literature, such as in Geddes, Schmidt and Steffen [28] or Mazzucato and Penna [40], were debated (cf. Fig. 6). Third, there was also little discussion around the tools (financial instruments) that a GIB should implement. This may be because these banks were among the first of their kind and hence the roles and tools discussed in more recent literature were not well known at the time of debate. These observations lead us to our fourth and final proposition:

4. *A learning effect on subsequent GIB establishment and design exists. Policymakers in other countries draw on these experiences via networks (such as the Coalition for Green Capital, or the Green Bank Network).*

As this work is the first of its kind, it would benefit from expanding it to include more than these two empirical cases if and when the data becomes available. In particular, work that investigates the four propositions put forward in this paper would be valuable, as explained above. In addition a more in-depth analysis exploring the subtle ways that political ideology plays out, especially in a seeming consensus, would help explain how parliamentarians reached their positions on various important topics (e.g. how GIBs are financed). We limited our data to political parliamentary debates but this work also could be expanded to investigate the political discourse behind GIBs within public opinion, the media and even the role of cross-country GIB advocacy groups such as the Green Bank Network. A longitudinal analysis could provide further insights as to how politics and partisanship play a role over time and could help investigate causality behind GIB politics and performance. After its establishment the CEFC survived several attempts to abolish it and it underwent regular mandate changes. Similarly, the UKGIB was eventually privatized: it is no longer mandated to focus exclusively on UK projects and may no longer be legally bound to achieve its original environmental performance requirements [97-99]. Extending the time frame of this work could show how the political controversy level of the debate changed over time and what impact it may have had, i.e. what role it played in the attempted abolition of the CEFC, what impact it had upon any mandate changes, what role it may have played in the eventual privatization of the UKGIB and any role politics may have played in a GIB's performance. There could also be value in studying cases that feature different varieties of capitalism to contrast the liberal-market economy variety of

capitalism of the UK and Australia, to countries with a more coordinated market economy, such as France, where a climate bank is also being considered. Finally by investigating the history and origins of GIBs, and how they came to be introduced to parliament, we may be able to determine what it takes for a country to start considering a GIB at the political level and why those who are well placed to implement such a tool, such as Switzerland for example, have not yet done so.

With this work we have made a contribution towards investigating the political discourse behind GIBs and have shown that politics matters for this potentially important policy instrument. These findings are relevant for other countries as they look to implement climate finance policies to operationalize the Paris Agreement and mobilize the finance essential for addressing climate change.

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# Appendix A

**Table A1: GIB background and context.** [28, 100-104]

<b>SIB</b>	<b>UKGIB</b>	<b>CEFC</b>
<b>Established</b>	2012	2012
<b>Ownership</b>	Initially government owned and operated, privatised in 2017	Government owned and operated
<b>Announced Mandate</b>	To help leverage the funds for Australia's transition to a lower carbon economy	To mobilise private finance in order to help the UK meet its emissions targets cost effectively.
<b>Public to private leverage ratio</b>	Approx. 1:3 (2016)	Approx. 1:3 (2019)
<b>Energy System Context</b>	<ul style="list-style-type: none"> <li>– UK is historically dependent on fossil fuel generation</li> <li>– More supportive policy context for low-carbon projects</li> <li>– Policy uncertainty has been a key roadblock to low-carbon project development</li> </ul>	<ul style="list-style-type: none"> <li>– Incumbent fossil fuel sector dominates Australian economy and energy mix</li> <li>– Unsupportive federal policy context for low-carbon projects</li> <li>– Policy uncertainty has been a key roadblock to low-carbon project development</li> </ul>
<b>Banking &amp; Financial System Context</b>	<ul style="list-style-type: none"> <li>– Market-based financial system.</li> <li>– Less concentrated banking sector featuring 6 large banks and 108 smaller banks.</li> <li>– Banking sector struggled to provide finance to low-carbon projects after the global financial crisis of 2008.</li> <li>– Banking system has historically struggled to provide the long-term finance required by low-carbon projects.</li> </ul>	<ul style="list-style-type: none"> <li>– Market-based financial system.</li> <li>– Highly concentrated banking sector dominated by 4 commercial banks.</li> <li>– Global financial crisis had little impact upon the Australian banking sector and economy.</li> <li>– Banking system has historically struggled to provide the long-term finance required by low-carbon projects.</li> </ul>
<b>Source of Capitalisation</b>	Prior to privatisation: GBP 3 billion (USD 3.9 bn) provided by UK Government, the sole shareholder (with a view to eventually giving the bank full access to capital markets in order to borrow freely)	AUD 10 billion (USD 7.9 bn) provided by Australian Government, the sole shareholder. No access to capital markets.
<b>Staffing</b>	130 full time equiv. employees (end 2016)	101 full time equiv. employees (Jun 2019)
<b>Target Sectors</b>		
Solar PV	n	y
Onshore wind	y (from 2016)	y
Offshore wind	y	n
Waste-to-energy, bioenergy	y	y
Energy efficiency	y	y
Small scale renewables	y	y
Energy storage	n	y
Agribusiness solutions	n	y
Green vehicles	n	y
<b>Financial tools</b>	Debt (market rate, long-term, subordinated, mezzanine), equity, securitization/ aggregation products	Debt (market rate, long-term, some concessional), equity, securitization/ aggregation products, guarantees (restricted to 5% uncommitted balance)
<b>Example programs and funds</b>	<ul style="list-style-type: none"> <li>UK GIB Operating Offshore Wind Fund</li> <li>Foresight UKWREI (UK Waste Resources and Energy Investments) Fund</li> <li>Societe Generale Equipment Finance (SGEF) Partnership for energy efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Sustainable cities investment program</li> <li>Clean Energy Innovation Fund</li> <li>Reef funding program</li> </ul>

# Appendix B

## **Parliament and Political Party Description**

Both countries follow a Westminster-style democracy featuring two legislative chambers; an upper and a lower house. Legislation, in the form of a bill, introduced in one house must pass through both houses in order to receive assent and pass into legislation.

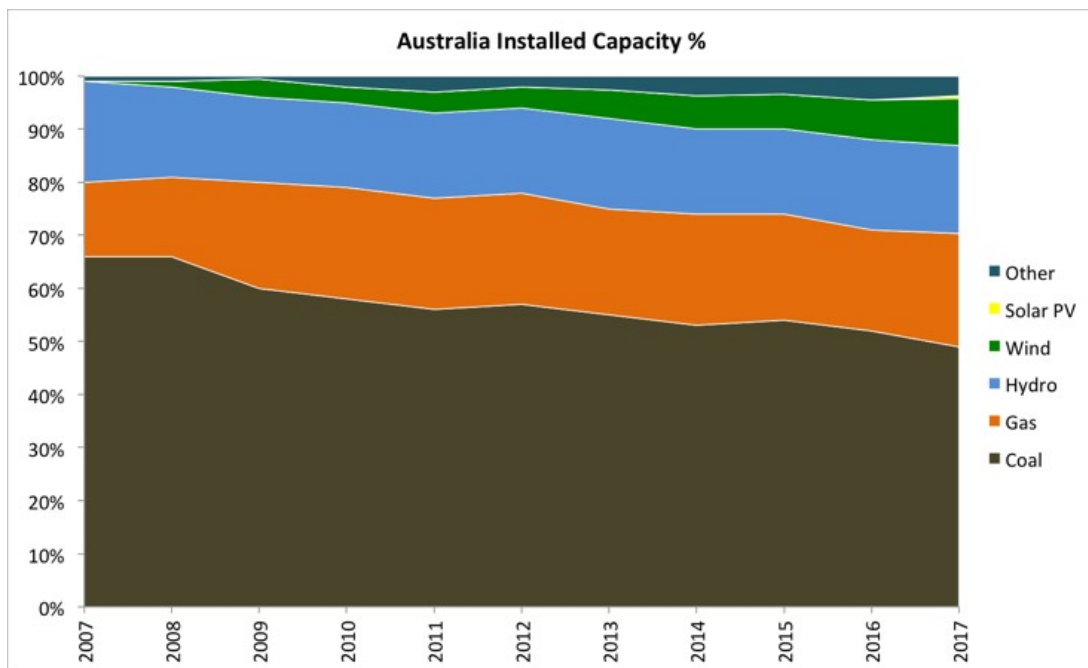
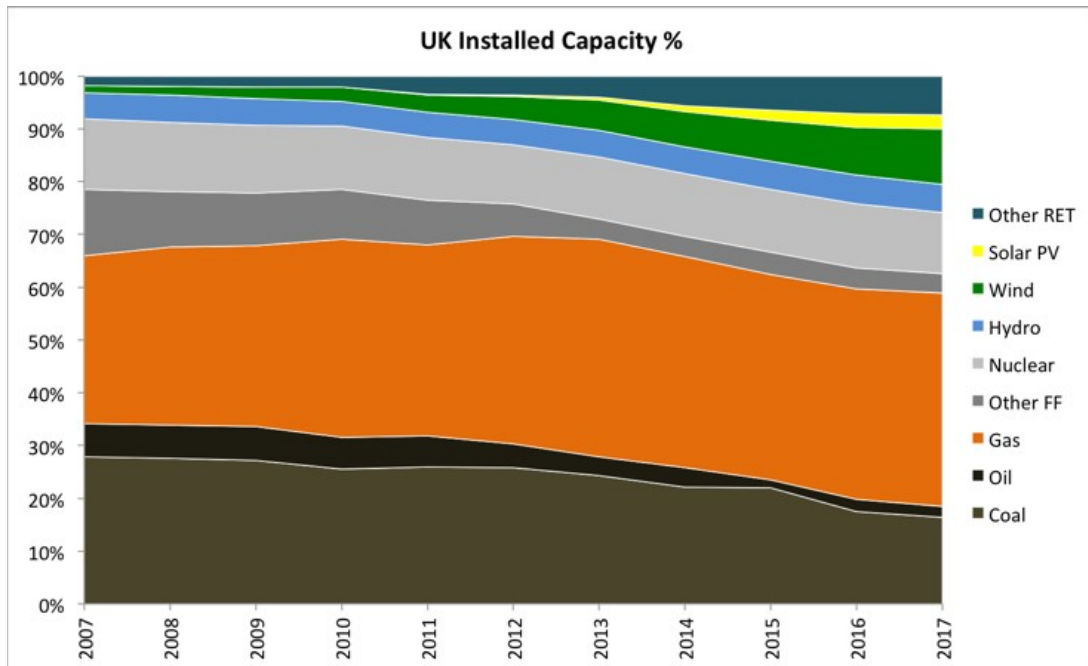
### The UK

The UK's lower chamber is known as the House of Commons and upper as the House of Lords and whereas the Commons is elected, the Lords is appointed [105]. The House of Lords has limitations on its powers and apart from very particular circumstances cannot reject government legislation: it uses its time to provide detailed checks on legislation, can delay bills and provide a check on the power of the Commons. The main political parties in the UK include the Conservative party (centre-right, officially known as the Conservative and Unionist Party), the Labour party (centre-left), the Liberal Democrats (centrist), and there are several minority parties including the Greens (left, officially known as the Green Party of England and Wales) [106].

### Australia

In Australia the chambers are the House of Representatives (lower house) and the Senate (upper house), which is modelled on the American senate, and unlike the UK's Lords it is elected [107]. Also unlike the UK's House of Lords the Australian Senate can reject government legislation but does have some restrictions on its power in relation to certain financial legislation. The political parties in Australia include the Australia Labor Party (centre-left, ALP), the Liberal Party of Australia (centre-right, the Liberals) and the Nationals (right), who together often form the Liberal-Nationals coalition, and several other minor parties, such as the Australian Greens (left), and independent members [108].

# Appendix C



**Figure C1: Country energy mix.** Installed capacity % by fuel type for UK and Australia [62, 109]

# Appendix D

**Table D1: Codebook**

Meta-category	Argument category	Description
	(N) negative argument <i>A GIB should(n't) be established because...</i>	
<b>Role of the state</b>	State market intervention reasons	Governments should intervene in markets, they can address market failures, they can 'pick winners' and help shape and create markets
	State market intervention reasons (N)	Governments shouldn't intervene in markets, they can't address market failures, they can't 'pick winners' and they distort markets
	State performance reasons	Government programs are successful, similar programs have succeeded elsewhere
	State performance reasons (N)	Government programs fail, are inefficient, wasteful (of tax payers' money) and expensive
	<i>A GIB should(n't) be established because it will (not) help to attain...</i>	
<b>High level policy goals</b>	Energy security goals	Establishing a GIB will help attain energy security goals, will improve energy security/diversity and system security
	Energy security goals (N)	Establishing a GIB will not help attain energy security goals, will not improve energy security/diversity and system security
	Energy cost goals	Establishing a GIB will help attain energy cost goals, reduce energy/electricity costs
	Energy cost goals (N)	Establishing a GIB will not help attain energy cost goals, it will increase energy/electricity costs
	Climate change and environmental goals	Establishing a GIB will help attain climate change and environmental goals, reduce GHG/CO2 emissions, reach RE & emissions targets, reduce pollution etc.
	Climate change and environmental goals (N)	Establishing a GIB will not help attain climate change and environmental goals, reduce GHG/CO2 emissions, reach RE & emissions targets, reduce pollution etc.
	Energy industry goals	Establishing a GIB will help attain energy industry goals
	Energy industry goals (N)	Establishing a GIB will not help attain energy industry goals
	<i>Energy industry goals sub-categories:</i>	
	General economic growth	Establishing a GIB will support/ stimulate economic growth
	General economic growth (N)	Establishing a GIB will not support/ stimulate economic growth
	Green economic growth	Establishing a GIB will support/ stimulate green economic growth, support green technological growth, create a green economy
	Green economic growth (N)	Establishing a GIB will not support/ stimulate green economic growth, support green technological growth, create a green economy
	Innovative economy	Establishing a GIB will support/ stimulate a more innovative economy, support innovative growth and novel/innovative markets, create an innovative economy, stimulate innovative technology
	Innovative economy (N)	Establishing a GIB will not support/ stimulate a more innovative economy, support innovative growth and novel/innovative markets, create an innovative economy, stimulate innovative technology
	Manufacturing growth	Establishing a GIB will support (local) manufacturing growth, manufacturing innovation, low-carbon manufacturing & industry etc.
	Manufacturing growth (N)	Establishing a GIB will not support (local) manufacturing growth, manufacturing innovation, low-carbon manufacturing & industry etc.
Job creation	Establishing a GIB will lead to job creation, employment, low-carbon jobs	
Job creation (N)	Establishing a GIB will not lead to job creation, employment, low-carbon jobs, it will reduce jobs in the fossil fuel industry	

Meta-category	Argument category	Description
	(N) negative argument	
	Industry competitiveness	Establishing a GIB will improve industry/ manufacturing competitiveness, create opportunities, help industry catch up
	Industry competitiveness (N)	Establishing a GIB will not improve industry/ manufacturing competitiveness, create opportunities, help industry catch up
<i>A GIB should(n't) invest in...</i>		
<b>Target sector</b>	Renewable energy technology (RET)	Renewable energy technologies, solar PV/ thermal, off/on-shore wind, waste-to-energy, biogas, biomass, tidal, wave, estuary, geothermal
	Energy efficiency technology (EET)	Energy efficiency technologies, industry EE, buildings EE, insulation etc....
	Fossil fuel technology and carbon capture and storage (FFT & CCS)	Fossil fuel technologies, coal, gas, carbon capture and storage etc
	Nuclear technology (NT)	Nuclear technology
<i>What tasks and tools should a GIB fulfil and implement?</i>		
<b>Tasks and tools</b>	Crowd-in	The GIB should (won't) crowd-in private finance, attract private finance by co-investing, to projects
	Fill the financing gap	The GIB should(n't) fill, close the financing gap for novel, innovative, low carbon projects
	Provide investment certainty	The GIB will/ won't provide policy and investment certainty to investors
	Take a demonstration role	The GIB should(n't) take a demonstration role, demonstrate to the market that innovative, novel, low-c investments are viable, can deliver commercial returns
	Reduce investment barriers	The GIB should (or will not) reduce investment barriers e.g. tenure mismatches, high risk perception etc.
	Lend to un-bankable projects	The GIB should(n't) lend to un-bankable projects, projects that banks don't want to finance
	Ensure additionality	The GIB should (or will not) ensure additionality, only provide capital and activities where the "market can't or does not do the same, or otherwise does not provide financing on an adequate scale or on reasonable terms" (Dutch FMO definition)
	Provide capital	The GIB should(n't) provide capital, concessional/market rate debt, equity, mezzanine finance, bridging loans etc.
	Provide guarantees	The GIB should(n't) provide guarantees
<i>How should a GIB be organized?</i>		
<b>Organizational aspects</b>	Funding	How a GIB should be funded (e.g. government asset sales, access to borrow from capital markets, redirection of fossil fuel levy etc.) and declared on the government budget (e.g. declare and account for full funding amount or just predicted GIB losses)
	Matters of risk and return	How a GIB approaches risk and return e.g. take more/ less risk than the market, more/less return than the market, re-allocate risks, perform against a sector portfolio benchmark etc.)
	Independence	The GIB should be more/ less independent from government interference/ decision making
	In-house expertise	How the GIB fosters internal expertise, encourages staff recruitment etc.
	Performance criteria	What type of performance criteria should the GIB track and be judged against
	Real bank status	How a GIB operates and is defined in the market (e.g. like a fund, commercial bank, investment bank or other etc.)
	Headquarters location	Where the GIB should be headquartered
	Longevity of bank	The institution's longevity, how/ whether to design for a long life etc.

# Appendix E

**Table E1: List of Members of Parliament**

Country	Party	Member of Parliament	Country	Party	Member of Parliament
UK	Conservatives	Tony Baldry	Australia	Australian Labor Party	Mike Kelly
UK	Conservatives	Matthew Hancock	Australia	Australian Labor Party	Gregory Combet
UK	Conservatives	George Osborne	Australia	Australian Labor Party	Graham Perrett
UK	Conservatives	Justine Greening	Australia	Australian Labor Party	Kelvin Thomson
UK	Conservatives	Gregory Barker	Australia	Australian Labor Party	Laura Smyth
UK	Conservatives	Mark Prisk	Australia	Australian Labor Party	Melissa Parke
UK	Conservatives	Peter Aldous	Australia	Australian Labor Party	Gai Brodtmann
UK	Conservatives	Charles Hendry	Australia	Australian Labor Party	Steve Gibbons
UK	Conservatives	Christopher Pincher	Australia	Australian Labor Party	Julia Gillard
UK	Conservatives	Andrea Leadsom	Australia	Australian Labor Party	Catherine King
UK	Conservatives	John Hayes	Australia	Australian Labor Party	Anna Burke
UK	Conservatives	Mark Hoban	Australia	Australian Labor Party	Martin Ferguson
UK	Conservatives	Zac Goldsmith	Australia	Australian Labor Party	Andrew Leigh
UK	Conservatives	Stewart Jackson	Australia	Australian Labor Party	Sharon Grierson
UK	Conservatives	Claire Perry	Australia	Australian Labor Party	Ed Husic
UK	Conservatives	Tim Yeo	Australia	Australian Labor Party	Wayne Swan
UK	Conservatives	Oliver Colvile	Australia	Australian Labor Party	Stephen Jones
UK	Conservatives	Andrew Bridgen	Australia	Australian Labor Party	Mark Dreyfus
UK	Conservatives	Anne McIntosh	Australia	Australian Labor Party	Julie Owens
UK	Conservatives	Simon Kirby	Australia	Australian Labor Party	Greg Combet
UK	Conservatives	David Cameron	Australia	Australian Labor Party	Kim Carr
UK	Conservatives	George Freeman	Australia	Australian Labor Party	Matt Thistlethwaite
UK	Conservatives	Julian Smith	Australia	Australian Labor Party	Penny Wong
UK	Conservatives	Richard Benyon	Australia	Australian Labor Party	Mark Bishop
UK	Conservatives	Graham Stuart	Australia	Australian Labor Party	Chris Evans
UK	Conservatives	Chloe Smith	Australia	Australian Labor Party	Ian Macdonald
UK	Conservatives	Jason McCartney	Australia	Australian Labor Party	Louise Pratt
UK	Conservatives	Guy Opperman	Australia	Australian Labor Party	Anne Urquhart
UK	Conservatives	Chris White	Australia	Green	Adam Bandt
UK	Conservatives	Stephen Mosley	Australia	Green	Christine Milne
UK	Conservatives	David Nuttall	Australia	Green	Larissa Waters
UK	Conservatives	Brandon Lewis	Australia	Liberal Party	Arthur Sinodinos
UK	Conservatives	Peter Lilley	Australia	Liberal Party	Andrew Robb

<b>Country</b>	<b>Party</b>	<b>Member of Parliament</b>	<b>Country</b>	<b>Party</b>	<b>Member of Parliament</b>
UK	Conservatives	George Young	Australia	Liberal Party	Joe Hockey
UK	Conservatives	Robin Walker	Australia	Liberal Party	Kelly O'Dwyer
UK	Conservatives	David Willetts	Australia	Liberal Party	Paul Fletcher
UK	Conservatives	Judith Wilcox	Australia	Liberal Party	Nola Marino
UK	Conservatives	Rupert Sonsonby	Australia	Liberal Party	Jamie Briggs
UK	Conservatives	Jonathan Marland	Australia	Liberal Party	Julie Bishop
UK	Conservatives	John Gummer	Australia	Liberal Party	Wyatt Roy
UK	Conservatives	James Sassoon	Australia	Liberal Party	Ian McFarlane
UK	Conservatives	Thomas Galbraith	Australia	Liberal Party	Bert Van Manen
UK	Conservatives	Michael Bates	Australia	Liberal Party	Scott Buchholz
UK	Conservatives	John Cope	Australia	Liberal Party	Joshua Frydenberg
UK	Conservatives	Neil Carmichael	Australia	Liberal Party	Alan Tudge
UK	Conservatives	Sheila Masters	Australia	Liberal Party	Craig Kelly
UK	Conservatives	John Palmer	Australia	Liberal Party	Russell Matheson
UK	Conservatives	Roger Freeman	Australia	Liberal Party	George Christensen
UK	Conservatives	Mohamed Sheik	Australia	Liberal Party	Alex Hawke
UK	Conservatives	Paul Deighton	Australia	Liberal Party	Dan Tehan
UK	Conservatives	James Younger	Australia	Liberal Party	Ewen Jones
UK	Conservatives	David Mowat	Australia	Liberal Party	Steven Ciobo
UK	Green	Caroline Lucas	Australia	Liberal Party	Simon Birmingham
UK	Labour	William Bain	Australia	Liberal Party	Sue Boyce
UK	Labour	John Denham	Australia	Liberal Party	Michael Ronaldson
UK	Labour	Clive Betts	Australia	Liberal Party	Mathias Cormann
UK	Labour	Laura Moffatt	Australia	Liberal Party	Concetta Fierravanti-Wells
UK	Labour	Jack Dromey	Australia	Liberal Party	Scott Ryan
UK	Labour	Alan Whitehead	Australia	Liberal Party	David Fawcett
UK	Labour	Mark Lazarowicz	Australia	Liberal Party	Gary Humphries
UK	Labour	Edward Miliband	Australia	Liberal Party	Dean Smith
UK	Labour	Tom Greatrex	Australia	Liberal Party	Greg Hunt
UK	Labour	Clive Efford	Australia	National Party	Michael McCormack
UK	Labour	Luciana Berger	Australia	National Party	Luke Hartsuyker
UK	Labour	Meg Hillier	Australia	National Party	Darren Chester
UK	Labour	Rachel Reeves	Australia	National Party	Ron Boswell
UK	Labour	Barry Gardiner	Australia	National Party	Barnaby Joyce
UK	Labour	Diana Johnson			
UK	Labour	John McDonnell			
UK	Labour	Andrew Gwynne			
UK	Labour	Barry Sheerman			

<b>Countr y</b>	<b>Party</b>	<b>Member of Parliament</b>	<b>Countr y</b>	<b>Party</b>	<b>Member of Parliament</b>
UK	Labour	Geoffrey Robinson			
UK	Labour	Fabian Hamilton			
UK	Labour	Caroline Flint			
UK	Labour	Glenda Jackson			
UK	Labour	Tony Lloyd			
UK	Labour	Chuka Umunna			
UK	Labour	Ronnie Campbell			
UK	Labour	Stella Creasy			
UK	Labour	Cathy Jamieson			
UK	Labour	Kumar Bhattacharyya			
UK	Labour	Anthony Giddens			
UK	Labour	Simon Haskel			
UK	Labour	Nicholas Stern			
UK	Labour	Angela Smith			
UK	Labour	Christopher Suenson-Taylor			
UK	Labour	Jim Cunningham			
UK	Labour	Micheal Meacher			
UK	Labour	Bryony Worthington			
UK	Labour	John McFall			
UK	Labour	David Pollock			
UK	Labour	Janet Royall			
UK	Labour	Anthony Young			
UK	Labour	John Whitty			
UK	Labour	Wilf Stevenson			
UK	Labour	John Monks			
UK	Labour	Joan Walley			
UK	Labour	John Healey			
UK	Labour	William Blain			
UK	Labour	Ann McKechin			
UK	Labour	Adrian Bailey			
UK	Labour	Austin Mitchell			
UK	Labour	Geraint Davies			
UK	Labour	Iain Wright			
UK	Labour	Pat McFadden			
UK	Liberal Democrats	Vince Cable			
UK	Liberal Democrats	Chris Huhne			
UK	Liberal Democrats	Jo Swinson			
UK	Liberal Democrats	Simon Hughes			
UK	Liberal Democrats	Ian Swales			
UK	Liberal Democrats	Michael Moore			
UK	Liberal Democrats	Stephen Williams			
UK	Liberal Democrats	Nick Clegg			
UK	Liberal Democrats	Mike Crockart			
UK	Liberal Democrats	Lorely Burt			
UK	Liberal Democrats	Greg Mulholland			
UK	Liberal Democrats	Edward Davey			
UK	Liberal Democrats	Charles Kennedy			
UK	Liberal Democrats	Richard Newby			
UK	Liberal Democrats	Robin Teverson			



<b>Country</b>	<b>Party</b>	<b>Member of Parliament</b>	<b>Country</b>	<b>Party</b>	<b>Member of Parliament</b>
UK	Liberal Democrats	Martin Horwood			
UK	Liberal Democrats	Susan Kramer			
UK	Liberal Democrats	Benjamin Stoneham			
UK	Liberal Democrats	Jennifer Randerson			
UK	Liberal Democrats	Edward Razzall			
UK	Liberal Democrats	Kathryn Parminter			
UK	Liberal Democrats	John Shipley			
UK	Liberal Democrats	Margaret Sharp			
UK	Liberal Democrats	Danny Alexander			
UK	Liberal Democrats	Norman Lamb			

# Appendix F

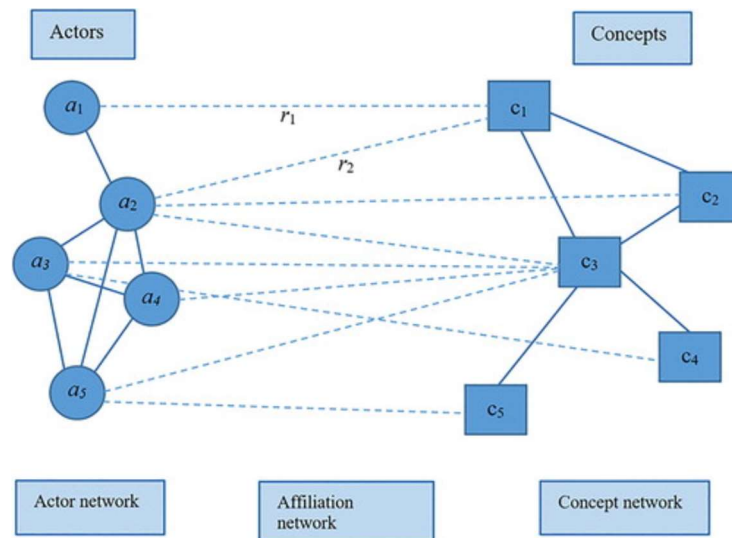


Figure F1. Overview on the model underlying Discourse Network Analysis (adapted from Leifeld 2016)